

CLAIMS

What is claimed is:

1. A method for performing adaptive migration and execution, the method comprising:

obtaining a plan;

adapting the plan to satisfy migration constraints;

and

starting at least one move of a data chunk in the plan.

2. The method of claim 1, wherein the steps in the method are repeated until no moves are pending.

3. The method of claim 2, further comprising:

waiting for all in-progress executions of moves to complete after no moves are pending.

4. The method of claim 1, further comprising:

waiting for a move to complete if the adaptation of the plan indicates no moves meet the migration constraints.

5. The method of claim 1, further comprising:  
estimating load value information; and  
using the load value information to assist in determining a modified plan.

6. The method of claim 1, wherein adapting the plan comprises:

selecting at least one step from the following:  
pruning at least one move that violate a migration constraint; selecting a largest set of moves that do not violate a migration constraint; and skipping a move that violates a migration constraint.

7. The method of claim 1, further comprising:  
treating a data chunk as existing in an old location and new location while a move is in progress.

8. The method of claim 7, wherein the step of treating the data chunk comprises:

pruning moves that violate an access rule when a move is in progress.

9. The method of claim 7, wherein the step of treating the data chunk comprises:

considering the data chunk as decreasing a per-node free space information at both the old location and the new location when a move is in progress.

10. A method for performing adaptive migration and execution, the method comprising:

obtaining a plan;  
determining all valid moves in the plan;  
starting a valid move; and  
if additional moves are required, obtaining a modified plan after starting the valid move.

11. The method of claim 10, further comprising:

determining if an executor is available.

12. The method of claim 10, wherein the steps in the method are repeated until no moves are pending.

13. The method of claim 12, further comprising:  
waiting for all in-progress execution of moves to complete after no moves are pending.

14. An article of manufacture, comprising:  
a machine-readable medium having stored thereon instructions to:

obtain a plan;  
adapt the plan to satisfy migration constraints; and  
start at least one move of a data chunk in the plan.

15. An apparatus for adaptive migration, the apparatus comprising:

a planner configured to generate a migration plan based upon configuration information;

an adapter configured to receive the plan from the planner, to receive migration constraints information, target configuration information and current configuration information, and to transmit configuration information to the planner; and

at least one executor configured to execute a move in the plan.

16. The apparatus of 15, wherein the configuration information includes in-progress moves.

17. The apparatus of 15, wherein the configuration information includes load information.

18. The apparatus of 15, further comprising:

a load estimator configured to estimate load information for use in determination of the plan.

19. The apparatus of 18, wherein the configuration information includes load information.

20. The apparatus of claim 15, wherein the adapter obtains a plan until no moves are pending.

21. The apparatus of claim 20, wherein the adapter waits for all in-progress executions of moves to complete after no moves are pending.

22. The apparatus of claim 15, wherein the adapter waits for a move to complete if the adaptation of the plan indicates no moves meet the migration constraints.

23. The apparatus of claim 15, wherein the adapter estimates load value information and use the load value information to assist in determining an adapted plan.

24. The apparatus of claim 15, wherein the adapter is configured to select at least one step from the following: prune at least one move that violate a migration

constraint; select a largest set of moves that do not violate a migration constraint; and skip a move that violates a migration constraint.

25. The apparatus of claim 15, wherein the adapter is configured to treat a data chunk as existing in an old location and new location while a move is in progress.

26. The apparatus of claim 25, wherein the data chunk is treated by pruning moves that violate an access rule when a move is in progress.

27. The apparatus of claim 25, wherein the data chunk is treated by considering the data chunk as decreasing a per-node free space information at both the old location and the new location when a move is in progress.

28. An apparatus for performing adaptive migration and execution, the apparatus comprising:

means for obtaining a plan;

means for adapting the plan to satisfy migration constraints; and

means for starting at least one move of a data chunk in the plan.